UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,915	08/20/2003	Hiroyuki Sato	11-193	4777

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EXAMINER
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ART UNIT	PAPER NUMBER
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DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *09 March 2006*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is

   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-13* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-13* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *20 August 2003* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage

      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

This Office action is responsive to the application filed 3/9/2006. Claims 8-13 are new,

and thus claims 1-13 are currently pending. Applicants' arguments and amendments have been

carefully considered, but they are not persuasive and do not place the application in condition for

allowance. Accordingly, this action has been made FINAL.

All previously outstanding objections and rejections to the Applicant's disclosure and

claims not contained in this Action have been respectfully withdrawn by the Examiner hereto.

Response to Arguments

Applicant's arguments filed with the Response (3/9/2006) have been fully considered but

they are not persuasive.

As per claims 3-5, Applicant argues on page 13 of the response that "the optimization

process ... is executed in response to ... a specific statement in an application program *stored* at

the portable information terminal;" however, such a limitation is not contained in claim 3, as

presently drafted. Claim 3 merely states that the specific statement is incorporated in an

application program that is *used* in said portable information terminal, not necessarily *stored*

therein (as argued). Likewise, the remainder of Applicant's arguments on page 13 in regard to

claim 3 do no relate to subject matter that is specifically claimed in claim 3. For example, the

"setting of a condition selecting whether the optimization process is executed" is additionally not

claimed in claim 3. With regard to lines 10-13 of claim 3, the argued limitation claims

"execution of the optimization processing in response to execution of a specific statement of an

application program that is used in the portable information terminal." Such a limitation is

taught by Komatsu as discussed below in relation to the writing and reading code used for

accessing the terminal 20 that is executed by the processor 22 to access the data - column 3, lines

35-42. In other words, because the portable information terminal 20 (figures 1 and 14) operates

independent of the host when performing the evacuation, reading, and writing routines as

depicted in figures 5-9, 11, and 13, it is necessarily inherent that a form of microcode/firmware is

being used by the embedded CPU 22 of the portable information terminal 20 in order to enable

the methods of the respective figures to function as taught. The Examiner has considered the

method of figures 5-9, 11, and 13, to be an --application program-- where it has been regarded

below, with respect to the rejection of claim 3, that in response to a specific statement (i.e. the

corresponding statement of the microcode/firmware running on the portable information terminal

20 that accepts a file to write from the host and then immediately checks whether or not the

remaining free space has reached a determined threshold (such as taught with respect to column

8, lines 31-33).

Further regarding claim 3, the new rejection of claim 3 is necessitated based on

Applicant's amendment regarding the addition of claim 9. In order to reject the new limitations

comprised in claims 9, a new reference had to be applied as the new limitations are not

specifically taught by the Komatsu reference. The Examiner would not have modified the

rejection of claim 3 if the amendment of claim 9 had not been made.

As per claim 6, Applicant argues on page 14 that "the optimization process is

automatically executed when the designated date and/or time arrives." Further, Applicant

argues, "the specification discloses that the designated date/time can be night time or similar

point ..." However, a limitation regarding a "time of day" is not specifically claimed, rather just

a designated "time." Such a "designated time" has been considered by the Examiner as the

"time" in which only 2 free blocks remain as discussed below with regard to column 8, lines 31-

33. The "time" when 2 free blocks remain has been "designated" by the system as the specific

"time" when optimization processing is to be performed. While not specifically commenting on

the allowability of such a limitation, the Examiner acknowledges that Komatsu does not

specifically teach executing the optimization processing based on a specific "time of day." Such

an amendment would overcome the present rejection of claim 6 and any dependent claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2,10, and 12, are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

As per claim 2, it is not clear whether the term

--the stop of electric power supply-- refers to the --automatic power off operation-- or if the

limitation is attempting to broaden the automatic power off operation, as the former term lacks

antecedent basis. Nonetheless, for the purpose of examination, the Examiner has chosen to

regard the former term to imply the latter term.

As per claims 10 and 12, the claims are not commensurate with the scope of base claim 3.

Claim 3 specifically states that *in response to the execution of a specific statement* the

optimization process occurs. Therefore, since claims 10 and 12 both claim that the optimization

process occurs *before* the specific statement is executed. Therefore, it can be seen that claims 10

and 12 do not particularly point out and distinctly claim the subject matter that Applicant regards

as his invention. Because the scope of the claims is unclear, the Examiner has chosen not to

apply art to the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Komatsu et al.

(U.S. Patent No. 5,802,551). Refer also to the response to Applicant's arguments, discussed

above.

As per claim 3, Komatsu teaches a portable information terminal 20 equipped with a

flash memory 25 (figure 1), which includes a data storage region (i.e. the collection of all of the

data portions of each flash sector - refer to figure 3) and a directory region (i.e. the collection of

all of the erase flags for each sector - figure 3). Komatsu teaches a means for setting a memory

optimization order instruction execution of optimization for the flash memory (i.e. the evacuation

procedure for gaining free flash space - figures 5-10). The optimization processing includes

deletion of data stored in a designated area (sectors whose erase flag is set) of the data storage

region. These sectors correspond to information indicating old data that is to be deleted, stored

in the directory region (corresponding erase flag is set - column 4, lines 31-34). This process

restores the designated data of the data storing region as available storage regions, which are then

written with valid data (column 8, lines 12-14).

Komatsu also teaches a means for executing the optimization processing (evacuation

process) for the flash memory according to the memory optimization order (i.e. request to begin

evacuation processing) in response to execution of a specific statement (incoming data block to

be stored) incorporated in an application program (i.e. the writing and reading code used for

accessing the terminal 20 that is executed by the processor 22 to access the data - column 3, lines

35-42) used in said portable information terminal 20 as taught in column 8, lines 31-33.

As per claim 4, Komatsu teaches a means for selectively determining whether or not said

optimization processing for the flash memory (i.e. evacuation process) should be executed in

response to the execution of said specific statement (i.e. write command from host) in column 8,

lines 31-33. Specifically, Komatsu teaches based on the number of free sectors whether or not

the evacuation process is to occur. As discussed in the example of column 8, lines 1 - 65, if a

write process for data from the host occurs and the number of free blocks remaining in the flash

is greater than two (column 8, lines 4-11), than the optimization processing (evacuation process)

selectively does not occur; however, if the number of remaining blocks is two (column 8, lines

31-33), then the optimization processing is selected to occur.

Further, Komatsu teaches a means for setting execution timing of the optimization

(evacuation process) for the flash memory to a predetermined point of time later than the

execution of the specific statement (write instruction) with respect to column 8, lines 4-6, and

column 12, lines 55-57. Komatsu teaches that instead of a executing a write request and then

checking whether or not the number of free sectors is two (which triggers the evacuation

process) (column 8, lines 4-6), execution of the evacuation process can be changed to a

predetermined time (when no free blocks are remaining instead of two - column 12, lines 55-57)

later than the execution of the specific write command that would execute the evaluation process.

In other words, the write request resulting in no remaining free blocks would trigger the

evacuation processes, which is a predetermined point of time (i.e. two write instructions later)

later than the write request resulting in two remaining free blocks.

Still further, Komatsu teaches that the optimization size of the flash memory can be

adjusted as specific blocks may be used for evacuation or backup purposes instead of free blocks

for incoming data (refer to figure 12A - 12R). Using these specific blocks for other purposes

rather than incoming write data thereby decreased the optimization size of the flash memory (i.e.

reduces the number of free blocks that can be used to store incoming write data).

As per claim 5, as discussed above with respect to the rejections of claims 3 and 4, the

specific statement is a statement of receiving a file (sector of data) from host (figure 1) for

writing the sector of data in to the flash. Column 8, lines 31-33, of Komatsu teaches that the

optimization process begins after the write to the flash, which results in only two sectors now

being free.

As per claim 6, the rejection of lines 1-9 follows the rejection of lines 1-9 of claim 3.

Komatsu teaches a means for executing said optimization processing (evacuation process) for the

flash memory according to the memory optimization order (i.e. the instruction to begin

evacuation processing) at a designated time (i.e. the time in which only two remaining sectors

are free - column 8, lines 31-33). At the point in time when only two sectors are free, the system

of Komatsu begins evacuation processing in order to free up erasable sectors for future write

requests.

As per claim 7, as discussed in the rejection of claim 4, Komatsu teaches a means for

selectively setting the time for executing the optimization processing (evacuation process) for the

flash memory to when only a predetermined number of free sectors remain. In column 8, lines

31-33, Komatsu teaches optimization processing when only two free sectors remain, while

teaching selectively setting the optimization processing to start when no free sectors remain in

column 12, lines 55-57. Refer also to figures 10 and 12.

Komatsu teaches that the optimization size of the flash memory can be adjusted as

specific blocks may be used for evacuation or backup purposes instead of free blocks for

incoming data (refer to figure 12A - 12R). Using these specific blocks for other purposes rather

than incoming write data thereby decreased the optimization size of the flash memory (i.e.

reduces the number of free blocks that can be used to store incoming write data).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

Claims 1-3,9,11, and 13, are rejected under 35 U.S.C. 103(a) as being unpatentable over

Suda (U.S. Patent Application Publication No. 2002/0164147) in view of Komatsu et al. (U.S.

Patent No. 5,802,551).

As per claim 1, Suda teaches a method of optimizing processing for a flash memory (¶69)

of portable information terminal (image recording apparatus), which can comprise optimization

of the flash memory by reallocation of image data and removal of the vacant data locations from

file deletion (abstract). The optimizing processing can occur **in response to an automatic**

power off (¶66). Suda teaches in ¶66 that a flash memory can be used in an embodiment of the

invention but does not specifically teach how the deletion method is applied when a flash

memory is used. Komatsu teaches a method for optimizing a flash memory in order to

consolidate space when files are to be deleted (erased) - abstract. In order to perform the flash

erasing/re-allocation, erase flags are used (abstract), and then at a predetermined time the data

associated with an erase flag is erases as taught in Komatsu. Komatsu teaches in column 7, lines

34-37, that flash memory has a limit in the number of times that it can be erased, so in order to

maximize the use of the flash memory, the number of times the memory is to be rewritten needs

to be averaged across the memory area; Komatsu teaches such a method throughout the

reference. Therefore it would have been obvious to one having ordinary skill in the art at the

time the invention was made to have combined the image recording apparatus of Suda with the

method of rewriting flash memory of Komatsu in order to have optimized the re-allocaton and

removal (optimization processing) of Suda.

The flash memory of modified Suda Komatsu comprises a flash memory that includes a

data storing region (i.e. the collection of all of the data portions of each flash sector - figure 3)

and a directory region (i.e. the remainder of the flash memory that comprises the collection of all

of the erase flags for each sector - figure 3). Suda teaches a means for setting (i.e. a user can turn

off the image recording apparatus to activate the optimization - ¶66) a memory optimization

order instructing execution of optimization processing. It could have been seen by one having

ordinary skill in the art that the image to be deleted of modified Suda (¶¶31-32) would have been

marked with an erase flag as taught by Komatsu and then optimization processing occurring as

taught by Suda with the special erasing procedures occurring for the flash memory as taught by

Komatsu. Specifically, Komatsu teaches that the optimization processing includes deletion of

data stored in a designated area of said data storing region corresponding to information

indicating deletion of the data which is recorded in the directory region (column 3, lines 43-55).

The optimization processing of modified Suda restores said designated area of the data storing

region as an available data storing region as taught in column 3, lines 43-55, of Komatsu and

figures 2B-2D and ¶¶38-48.

As per claim 2, the user can selectively determine if the optimization processing should

be executed in response to the automatic power off operation, in that the user may decide to

perform the optimization processing by selecting a file to delete, which may also trigger an

optimization processing procedure (¶55). Additionally, Komatsu teaches in column 13, lines 40-

46, a means for selectively determining whether or not the optimization processing for the flash

memory should be executed in response to the stop of the electric power supply to the portable

information terminal in that if the host computer (refer to figure 1) determines that the memory

optimization processing (evacuation process) has stopped at the given point in the processing

(evidenced by data but no erasable sectors in the backup area), the host computer selectively

determines to [continue] performing the memory optimization (evacuation process of figure 12)

by the restart of the evacuation process. Conversely, it can be seen that if the previous

conditions had *not* been met (i.e. that data was present but no erasable sectors in the backup area)

that the host computer would selectively determine *not* to execute the memory optimization

(evacuation) process.

Further, Komatsu teaches that the optimization size of the flash memory can be adjusted

as specific blocks may be used for evacuation or backup purposes instead of free blocks for

incoming data (refer to figure 12A - 12R). Using these specific blocks for other purposes rather

than incoming write data thereby decreased the optimization size of the flash memory (i.e.

reduces the number of free blocks that can be used to store incoming write data). and with

reference to Suda in figures 2B-2G. Suda shows in figures 2B-2D one size of the flash memory

that is to be optimized (i.e. 13 blocks of data becomes the optimization size - as the operation

starts with reference to figure 2B) while figures 2E-2G show an optimization size of 18 blocks

(as the operation starts with reference to figure 2E).

As per claim 3, the rejection of lines 1-9 follows the rejection of claim 1, lines 1-9, supra.

As per lines 10-13, Suda teaches the optimization processing for the flash memory according to

said memory optimization order in response to execution of a specific statement (step 702 of

figure 7) that is incorporated in an application program (program stored in IC memory 111) used

in the portable information terminal (image recording apparatus) - ¶35.

As per claim 9, as shown in figure 7 of Suda, the specific statement (the check statement

to determine if the OFF switch has been selected - step 702) is not a flash memory operation as

no access to the flash memory is required to determine if the OFF switch was selected.

As per claim 11, as shown in figure 7, the next step after the specific statement (step 702)

is to execute the optimization processing (step 703).

As per claim 13, because no specific "time" limitation is claimed (i.e. such as a "time of

day") figure 7 of Suda shows that the optimization processing is executed a predetermined point

of time (i.e. the point of time directly after the detection of the switch 502 in the OFF selection).

In other words, the point of time directly after the switch is detected to the OFF, is when the

optimization processing (step 703) occurs.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suda (U.S. Patent

Application Publication No. 2002/0164147) in view of Komatsu et al. (U.S. Patent No.

5,802,551), as applied to claims 1-3,9,11, and 13 above, in further view of Johnson (U.S. Patent

No. 2003/0191973).

As per claim 8, modified Suda does not specifically teach a means for selecting a wait

time for the automatic power off operation. Johnson teaches in ¶27 (and figure 1) that a hand-

held device may have a pre-designated turn off setting (automatic power off operation) where the

user can select a pre-specified wait time for the power off based on inactivity by the user. Such a

teaching avoids battery drain to the hand-held device that utilizes the automatic power off

opeation (¶6). Therefore, it would have been obvious to one having ordinary skill at the time the

invention was made to have combined the image recording apparatus of modified Suda with the

wait time selecting method for the automatic power off operation of Johnson to have avoided any

unnecessary battery drain of the image recording apparatus, thereby extending the use time of the

image recording apparatus.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Shane M. Thomas whose telephone number is (571) 272-4188.

The examiner can normally be reached M-F 8:30 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matt M. Kim can be reached at (571) 272-4182. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shane M. Thomas

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